

Case of aneurism of the aorta, with laceration of the heart, by James Mathewson, 1826, 1876
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PERSISTENT SARCINA

Read to the Medical-Chirurgical Society
1845

Since its discovery in 1841, matters vomited by a patient, since it has been used by various observers under different circumstances. It has been found in cases of chronic diarrhoea, in other animals, in the urine, in abscesses, in the lung by Virchow, in the ventricles by Dr. Jenner,¹ and a dissection of the capsule in a case of catarrh has been performed, by MM. Robin and Rostan, familiarly known, as far as its peculiar conditions under which it occurs, to be as yet thoroughly understood. In my care, I have noted its persistence in this secretion, sarcina has not been observed to make its occurrence other than in Heller, of Vienna,² in 1843, when

¹ British and Foreign Medical Review, vol. 1, p. 100.
² Nysten, 'Dictionnaire de Médecine', vol. 1, p. 100.

VI.

CASE

OF

PERSISTENT SARCINA IN THE URINE.

(Read to the *Medico-Chirurgical Society of Edinburgh*, 18th February,
1857.)

SINCE its discovery in 1842 by Professor Goodsir in the matters vomited by a patient, sarcina has been frequently recognised by various observers under the same and also in very different circumstances. It has been found in the fæces, chiefly in cases of chronic diarrhoea, in the stomach of the rabbit and other animals, in the urine, in pus removed from gangrenous abscesses, in the lung by Virchow, in the fluid of the cerebral ventricles by Dr. Jenner,¹ and adhering to the external surface of the capsule in a case of cataract for which extraction had been performed, by MM. Robin and Sichel.² But though familiarly known, as far as its appearance is concerned, the peculiar conditions under which sarcina occurs cannot be said to be as yet thoroughly understood. In a case at present under my care, I have noted its persistent presence in the urine. In this secretion, sarcina has not been so frequently observed as to make its occurrence other than a subject of interest. Heller, of Vienna, in 1848, when examining the urine passed by

¹ 'British and Foreign Medico-Chirurgical Review,' 1853.

² Nysten, 'Dictionnaire de Médecine,' &c.; Article, Sarcine.

a young girl of eight years, discovered sarcina in the sediment; since that time he has met with it on two other occasions. Twice respectively it has been seen by Dr. George Johnson and Dr. Lionel Beale of London;¹ by the latter, in one of the two instances, in connection with Mr. Brown of Lichfield. The late Dr. John Mackay, of this city, also discovered sarcina in the urine as early as 1848. A specimen of this urine was seen by myself, and also by Dr. W. T. Gairdner, at whose suggestion it was shown by Dr. Mackay to Mr. Goodsir. From what is stated in the second and last editions of his 'Introduction to Clinical' Medicine, this appears to have been the only instance in which Dr. Bennett has seen sarcina in the urine. I do not know if, in any of these cases, the presence of sarcina in the urine was persistent, but this appears to me one of the chief points of interest in the case which has fallen more particularly under my own observation.

On the 10th of November, 1856, my advice was requested by a gentleman about sixty years of age, of studious and somewhat sedentary habits, on account of the following symptoms. Severe lumbar pain, felt chiefly upon exertion being made, and for some time after meals, with a frequent desire to pass water, though the demands did not appear to arise from the quantity of urine discharged. This brief outline of the case was communicated to me by letter. As these symptoms appeared to arise from renal or vesical affection, I requested to make a careful examination of the urine. On the 12th, a specimen of the urine was sent to me for this purpose—it had been passed the same morning. On the 13th, I examined it at the Infirmary, in company with my friend and house physician, Mr. William Hill. It was of pale straw colour, with a distinct mucous sediment; odour faintly urinous; of neutral reaction. Sp. gr. 1.025; depositing phosphates on the application of heat; not coagulable. Under the microscope numerous sarcinae, smaller in size, but otherwise precisely similar to the sarcina ventriculi, were at once detected; there were also present a considerable amount of epithelium, and a few small crystals of the ammoniaco-magnesian phosphate. The day after the examination of the urine was made I saw the patient for the first time. He was of a stout, rather corpulent frame, and

¹ 'The Microscope, and its application to Clinical Medicine,' p. 176.

his appearance did not indicate failing health. He informed me that for many months he had been subject to various dyspeptic symptoms, including want of appetite, foul tongue, with unpleasant taste in the mouth, flatulency, uneasiness in the stomach after meals, and confined bowels. In addition to these, there had been urinary and nervous symptoms: the former comprehending the lumbar pain, and the frequent calls to void water, to which reference has already been made; the latter, some degree of despondency of spirits, and incapability at times for mental exertion. At an earlier period, symptoms of a more precise character, as regards the urinary organs, had been present. He had on one occasion suffered very suddenly and unexpectedly from retention of urine; the assistance of an eminent surgeon had then been sought, and the catheter passed. About the same time the bladder was sounded, under the impression that a calculus might exist. No stone was detected, but since then two small concretions had been passed along with the urine. Regarding the case as one of dyspepsia, connected with a tendency to phosphatic deposits in the urine, I endeavoured to enforce such attention to the ordinary rules of health, particularly as to diet, bodily and mental exercise, as we know to be so generally useful in such circumstances. For the regulation of the bowels, small doses of rhubarb and bicarbonate of potash were prescribed; and I further ordered the use, firstly, of the diluted phosphoric, and then of the nitro-muriatic acid, in doses of twenty drops, thrice daily; the latter, not so much from the known effect of the continued administration of acids in causing the disappearance of phosphatic deposits, as on account of the general tonic virtues possessed by the combined acid. On the 22nd, that is, in the course of ten days, I again saw the patient, and was pleased to receive a favorable account of his state. He felt a material improvement as regarded the dyspeptic symptoms; and though the uneasiness in the back and the frequent calls to micturate continued, he was by no means discouraged, and readily yielded to my desire that he should continue the plan of treatment prescribed. On the 21st, the day previously, I had the second opportunity of examining the urine: its condition and characters were almost exactly similar to what were found on the former occasion, the sarcina, in particular, being

present in very considerable amount. On the 27th, I examined a specimen of the urine passed on the previous day. Colour pale straw, clear, with a small amount of white mucous sediment; odour faintly urinous; reaction neutral. Sp. gr. 1.028; phosphates deposited on the application of heat; not coagulable; no trace of sugar; presence of chlorides and sulphates determined. Urea existed in considerable amount. Under the microscope, sarcina, and crystals of the triple phosphate, as on former examinations. On the 10th of February, I examined a specimen of the urine of the 9th: the condition and characters were precisely the same as formerly, with the exception of the sp. gr., which was 1.026 instead of 1.028. On that day I saw the patient still suffering from the lumbar pain, though in less degree; but as regards his other ailments, decidedly relieved. On the same occasion I examined a specimen of the urine immediately after it was voided, and found it to contain the sarcinæ in as great number as when the urine had been kept for one or more days; the reaction of the urine, when thus examined, was faintly acid, and it did not contain crystals of the triple phosphate. It does not appear to me necessary to make any further remarks at present in regard to the case itself, which, except from the occurrence of the sarcina, has no point of special interest; at the same time, the short detail of its nature and progress which I have given, seemed to be required.

The observations in respect to the occurrence of the sarcina in this case may be stated as follows:

1st. *Its persistent presence*: including the examinations I have specially alluded to, and others, I have in a period of a little longer than two months examined the urine on ten different occasions, and have always found the sarcina present.

2nd. *Its being present in the fresh urine immediately after micturition*: an observation made on two separate occasions.

3rd. *The sarcina being unaccompanied by torulæ*: as is generally the case in the vomited matters, the evidence of a fermentative change.

4th. *The sarcina being present in urine, the reaction of which, though acid, very speedily became neutral and alkaline.*

5th. *The sarcina being distinctly visible in its perfect form for many days after the urine became highly alkaline.*

M. Robin¹ prefaces some most interesting historical remarks on the subject of sarcina, by observing that it seems to have no important pathological signification—that, in fact, it is innocuous; an opinion which seems to be the one generally entertained, and appears to receive some degree of confirmation from the case I have detailed, in which amelioration of symptoms has not been accompanied by any decrease in the amount of the sarcina. The addition of acids and alkalies produced no sensible effect on the sarcinæ, except that it rendered some which possessed a slight yellowish hue decidedly paler. Though the sarcinæ could be distinctly seen, and apparently quite unaltered for days after the urine in this case had become intensely alkaline, I observed that by degrees, as the decomposition advanced, the cells became broken up, and at last it became impossible to recognise them. Dr. Beale has made a somewhat similar observation in regard to one of the cases which fell under his notice. From what I saw, however, I am disposed to think that he attributes too much importance to the alkalinity of the urine in effecting the destruction of the cells. In connection with peculiar changes in the system, whether vital or chemical, it is interesting to note that by Virchow, who has very carefully investigated the whole subject of sarcina, it has been found in two cases of what he terms *Pneumono-mycosis Sarcinica*. In the one case, originally published in Froriep's 'N. Notizen,' 1846, Mai, No. 825, and which Virchow has again produced in his own 'Archiv' for June 1856—that of a man aged seventy, who had suffered reverses of fortune, and died from exhaustion eight days after admission to hospital in a state of complete marasmus, with diarrhœa and cough, with but little expectoration—sarcina in large numbers were found in part of the left lung, which had evidently undergone gangrenous disintegration; and in the second case, which is published in the last number of the 'Archiv,' that for November, 1856, the subject of which was a young man of thirty-three years, affected with tubercular phthisis, Virchow observed, on the dissection of the body, a part of the middle lobe of the right lung apparently affected in the same way as in the former case. In it, too, microscopic examination revealed the presence of sarcina in large amount.

¹ 'Histoire Naturelle des Vegetaux Parasites qui croissent sur l'homme et sur les Animaux Vivants.

As yet, we cannot be said to be thoroughly informed in regard to the circumstances in which sarcina occurs. On other points, however, which were long regarded as doubtful, we can now speak with greater confidence. Its development has been carefully studied by Frerichs; its vegetable nature scarcely admits of question. Yet though first described by Goodsir, in 1842, as a vegetable parasite, it was regarded by Professor Link and Busk, in 1843, as of animal structure, an infusorial animalcule of the genus *Gonium*. In 1844, its discoverer reasserted its vegetable nature. In 1847, Schlossberger described sarcina as portions of disintegrated primitive muscular fibre, a view which the experiments of Hasse, Virchow, and Robin, and the recent observations of the different circumstances in which it occurs, have completely exploded. Its vegetable nature is now almost universally conceded, and it is classed under the genus *Merismopædia* of Meyen, the species *Merismopædia ventriculi* of C. Robin. It has been contended that sarcina is a product of decomposition, an opinion which Virchow holds not to have been demonstrated, and which, in the instance I have related, it would certainly be difficult to establish. It has also been attempted to prove that sarcina plays some part in the act of fermentation;¹ but neither with fermentative change in the system, or other abnormal symptoms, does the formation of sarcina appear to be at all intimately associated.

It is very possible that further researches may throw additional and very important light on those parts of the subject which must be still regarded as obscure. Towards this end, nothing will tend more directly than placing on record the circumstances connected with any additional observation; such is the motive which evidently animates our distinguished brethren on the Continent. And as Virchow has recently published a single case in which sarcina was found in the dead body, I trust that the present contribution towards the elucidation of this peculiar parasite, as it occurs in the living, will be accepted by the Society.

¹ See "Clinical Lectures" by Dr. Todd. 'Medical Times and Gazette,' 1854, vol. xxx.



